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Project No.: 12CA08535
File No.: MC16340
Report No.: 12CA08535-1-FCC
Date: August 17, 20112
Model No.: FXRS-03A
FCC ID.: RYK-WPEA121N
IC Number: 6158A-WPEA121NW

RF Test Report

in accordance with
FCC Part 15 Subpart C §15.247 and IC RSS-210 Issue 8

for

System Control Unit

Vieworks Co., Ltd.
#601 ~ 610, Suntechcity 2, 307-2, Sangdaewon-dong Jungwon-Gu
Seongnam-city Gyeonggi-do, 462-806, South korea

Summary of Test Results:

The following tests were performed on a sample submitted for evaluation of compliance with FCC Part 15 C Section 15.247 and IC RSS-210 Issue 8					
No	Reference Clause No.		FCC Part15 Subpart C Conformance Requirements	Result Verdict	Remark
	FCC Rule	IC Rule			
1	15.247(a) (2)	A8.2(a)	6dB Bandwidth Measurement	N/A	*Note [2]
2	-	Gen 4.4.1	99% Bandwidth Measurement	N/A	*Note [2]
3	15.247 (e)	A8.2(b)	Power Spectral Density Measurement	N/A	*Note [2]
4	-	-	Average Power Measurement	N/A	*Note [2]
5	15.247(b)	A8.4	Peak Power Measurement	N/A	*Note [2]
6	15.247(d)	A8.5	Conducted Spurious Emission Measurement	N/A	*Note [2]
7	15.247(d)	A8.5	Band Edges Measurement	Complied	-
8	15.247(d)	A8.5	Radiated Emission Measurement	Complied	-
9	15.247	Gen 7.2.2	AC Conducted Emission Measurement	Complied	-
*Note [1]: N/T=Not Tested, N/A=Not Applicable *Note [2]: Test was performed by modular transmitter (FCC ID: RYK-WPEA121N, Test Report no. FR131667AC issued on May.02,2011 by Sporton International Inc.)					

Compliance with FCC rules is being demonstrated by performing radiated spurious emissions on the host system and providing the test reports for the rf module used in this system to cover the antenna port measurement requirements.

The modular reports allow for a maximum gain PIFA antenna to be 2.0dBi/2.0dBi in the 2.4GHz band and 5GHz bands. This host device uses a dipole antenna with a maximum gain of 3.585 dBi in the 2.4GHz band and 2.83dBi in the 5GHz bands, therefore the limits used for the output power and power spectral density in the modular reports for 5GHz operations (DTS and NII) show compliance for the host using these antennas as they are of equal or lower gain. For 2.4GHz operations the composite gain for 2x2 beamforming modes is 6.6 dBi. the output power limit for a 6.6 dBi antenna is 29.4dBm. the maximum measured output power was 27.19dBm which complies with this limit of 28.3dBm. All bandwidth, power and power density measurements were made in accordance with the latest FCC KDB guidance documents for DTS and NII transmitters.

Radiated spurious emissions were tested for the host system so the different antenna type is covered by the system level tests.

Conclusion:

The tests listed in the Summary of Testing section of this report have been performed and the results recorded by UL Korea Ltd. in accordance with the procedures stated in each test requirement and specification. The test list was determined by the Applicant as being applicable to the Equipment Under Test. As a result, the subject product has been verified to comply or not comply as noted in the Summary of Testing with each test specification. The test results relate only to the items tested.

Witness tested by
Hongsuk Oh, WiSE Associate Project Engineer
UL Verification Services- 3014ASEO
UL Korea Ltd.
Aug. 17, 2013

Reviewed by
Jeawoon, Choi, WiSE Operations Manager
UL Verification Services – 3014ASEO
UL Korea Ltd.
August 17, 2013

Test Report Details

Test Report No:	12CA0853-1-FCC
Witness Tests Performed By:	UL Korea Ltd. 33rd FL. GFC Center, 737 Yeoksam-dong, Gangnam-gu, Seoul, 135-984, Korea
Test Site:	KES Co., Ltd. 477-6, Hageo-ri, Yeoju-eup, Yeoju-gun, Gyeonggi-do, 469-803, Korea
Applicant:	Vieworks Co., Ltd. #601 ~ 610, Suntechcity 2, 307-2, Sangdaewon-dong Jungwon-Gu Seongnam-city Gyeonggi-do, 462-806, South korea
Applicant Contact:	Jeong-mi Kim
Title:	Manager
Phone:	+82-70-7011-6176
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FCC ID:	RYK-WPEA121N
IC Number:	6158A-WPEA121NW
E-mail:	salangshy@vieworks.com
Product Type:	System Control Unit
Model Number:	FXRS-03A
Trademark	System Control Unit
Sample Serial Number:	N/A
Test standards:	FCC Part 15 C Section 15.247and IC RSS-210 Issue 8
Sample Serial Number:	N / A
Sample Receive Date:	2013.07.09
Testing Date:	2013.07.30 ~ 2013.08.09
Test Report Date:	2013.08.17
Overall Results:	**Pass**

UL Korea Ltd. reports apply only to the specific test samples and test results submitted for UL's review. All samples tested were in good operating condition throughout the entire test program. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. UL Korea Ltd. shall have no liability for any deductions, inferences or generalizations drawn by the client or others from UL Korea Ltd. issued reports. This report shall not be used to claim, constitute or imply product certification, approval, or any agency of the National Authorities. This report may contain test results that are not covered by the NVLAP or KOLAS accreditation.

Report Directory

1. General Product Information

1.1. Equipment Description

Wireless communication is established between the ViVIX-S Wireless detector and System Control Unit.

Details of Test Equipment (EUT)

- Equipment Type : System Control Unit
- Model No. : FXRS-03A
- Trade name : System Control Unit
- Type of test Equipment : System Control Unit
- Operating characteristic : Short range wireless device operating in the 2400 – 2483.5 ISM frequency band
- Manufacturer : Vieworks Co., Ltd.
  #601 ~ 610, Suntechcity 2, 307-2, Sangdaewon-dong Jungwon GuSeongnam-city
  Gyeonggi-do, 462-806, South korea

1.2. Equipment Configuration

The EUT is consisted of the following component provided by the manufacturer.

Use*	Product Type	Manufacturer	Model	Comments
EUT	System Control Unit	Vieworks Co., Ltd.	FXRS-03A	-
***Note:** Use = EUT - Equipment Under Test, AE - Auxiliary/Associated Equipment. SIM - Simulator (Not Subjected to Test)				

1.3. Technical Data

Item	System Control Unit
Frequency Ranges	2412 ~ 2462 MHz, 5745~5825 MHz,
Kind of modulation (s)	DSSS (CCK), OFDM(BPSK, QPSK, 16QAM, 64QAM)
Channel	2412 ~ 2462 MHz: 11 channel(11b/g/n_HT20), 2422 ~ 2452 MHz : 7 channel(11n_HT40) 5745~5825 MHz: 5 channel(11a/n_HT20– Non DFS) 5755 ~ 5795 MHz: 2 channel(11n_HT40 – Non DFS)
Antenna information	Connector type (Dipole antenna)
Working temperature	-20 ~ 70 ℃
Supply Voltage	AC 120 V
***Note:** All the technical data described above were provided by the manufacturer.	

1.4. Antenna Information

Item	System Control Unit
Antenna Model Name	JK-450B
Antenna Type	Dipole antenna
Manufacturer	RODEM MICROSYSTEM CO., LTD.
Transmit Gain dBi	2.4 G: Max. 3.585dBi, 5 G: Max. 2.830dBi
Azimuth Beam Pattern	Linear vertical
***Note:** All the technical data described above were provided by the manufacturer.	

1.5. Equipment Type :

☒ Radio and ancillary equipment for fixed or semi-fixed use
☐ Radio and ancillary equipment for vehicular mounted use
☐ Radio and ancillary equipment for portable or handheld use

☒ Stand alone ☐ Host connected

☐ Self contained single unit ☒ Module with associated connection or interface

1.6. Technical descriptions and documents

No.	Document Title and Description
1	User Manual
2	RODEM MICROSYSTEM CO., LTD. // Antenna specification // JK-450B
***Note:** The following document was provided by the manufacturer.	

1.7. Equipment Marking Plate

1.8. Description of additional model name

Model name	Model name Designation	Description of design
N/A	N/A	N/A

2. Test Specification

The following test specifications and standards have been applied and used for testing.

The following test specifications and standards have been applied and used for testing.

1) FCC Part 15 C Section 15.247
Operation within the bands 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz

2) ANSI C63.4:2009
American National Standard for Methods of Measurement of Radio- Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

3) KDB 558074 D01 v03
Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247

3. Test Conditions

3.1. Equipment Used During Test

Use*	Product Type	Manufacturer	Model	Comments
EUT	System Control Unit	Vieworks Co., Ltd.	FXRS-03A	-
AE	X-Ray Detector	Vieworks	FXRD-1417WA	-
AE	Note PC	Lenovo	X2000	-
***Note:** Use = EUT - Equipment Under Test, AE - Auxiliary/Associated Equipment. SIM - Simulator (Not Subjected to Test)				

3.2. Input/Output Ports

Port #	Name	Type*	Cable Max. >3m	Shielded	Comments
1	Mains	AC	1.6 m	Unshielded	AC Power input port
2	Signal port	I/O	4.0 m	Shielded	Generator interface Cable
3	DC Output	DC	2.0 m	Shielded	SCU DC output port
4	RJ45	I/O	14.5 m	Shielded	PC to SCU interface Cable
5	Signal port	I/O	15 m	Shielded	SCU to X-Ray detector Cable

Note 1: All the interface cables and Power Cable have been provided by the manufacturer
Note 2: *AC = AC Power Port DC = DC Power Port N/E = Non-Electrical
I/O = Signal Input or Output Port (Not Involved in Process Control)
TP = Telecommunication Ports

3.3. Power Interface

Mode #	Voltage (V)	Current (A)	Power (W)	Frequency (DC/AC-Hz)	Comments
Rated	AC100 to 240V	-	-	50/60 Hz	Rated of System Control Unit
1	120V	-	-	60Hz	-

3.4. Operating Frequencies

Mode #	Frequency tested
1	Operating frequency range: 2 412 ㎒ ~ 2 462 ㎒ (11b/g & n_HT20) 3 channels in the Transmitter modes of 11b/g/n-HT20 are tested. - Low : 2412 MHz / CH = 1 - Mid : 2437 MHz / CH = 6 - Top : 2462 MHz / CH= 11
2	Operating frequency range : 2 422 ㎒ ~ 2 452 ㎒ (11n_HT40) 3 channels in the Transmitter modes of 11n-HT40 are tested. - Low : 2422 MHz / CH = 3 - Mid : 2437 MHz / CH = 6 - Top : 2452 MHz / CH= 9
3	Operating frequency range : 5 745 ㎒ ~ 5 825 ㎒ (11a & n_HT20) 3 channels in the Transmitter modes of 11a/n-HT20 are tested. - Low : 5745 MHz / CH = 149 - Mid : 5785 MHz / CH = 157 - Top : 5825 MHz / CH= 165
4	Operating frequency range : 5 755 ㎒ ~ 5 795 ㎒ (11an_HT40) 2 channels in the Transmitter modes of 11n-HT40 are tested. - Low : 5755 MHz / CH = 151 - Top : 5795 MHz / CH= 159

3.5. Operation Modes

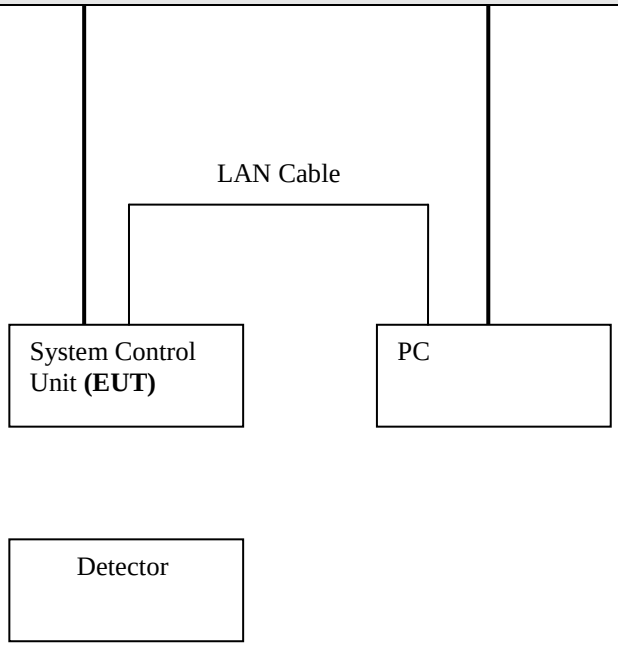
Mode #	Description
1	Carrier on mode: Signal from the RF module was generated continuously for the representative channels (Low, Mid, High) by the test program incorporated
2	Carrier off (Idle) mode: RF carrier was not activated by the RF module.

***Note:**

1. The worst-case condition is determined by the baseline measurement of RF output power of the modular transmitter test report. The worst-case channel was determined as the channel with highest output power.

2. Output power from the device during the radiated spurious measurements are within expected tolerance of the module test results to justify using the original conducted antenna port measurements for the module(average power).
   -. 11b/g : 17.0 dBm, 11n-HT20 : 16.0 dBm, 11n-HT40: 13.0 dBm for each channel
   -. 11a/n-HT20/40 : 16.0 dBm for each channel.

3.6. Test Configurations

No.	Test Set-up
1	

3.7. List of Test Equipment

No	Description	Manufacturer	Model	Identifier	Cal. Due
1	Spectrum Analyzer	R&S	FSV30	100736	2014.01.10
2	8360B Series Swept Signal Generator	HP	83630B	3844A00786	2014.06.06
3	Low Pass Filter	Mini-Circuits	NLP-1200+	V8979400903-1	2014.07.11
4	High Pass Filter	Wainwright Instrument	WHK6.0/18G-10SS	11	2014.07.07
5	High Pass Filter	Wainwright Instrument	WHJS3000-10TT	1	2014.01.10
6	Trilog-BroadBand Antenna	Schwarzbeck	VULB 9168	9168-462	2014.10.25
7	Horn Antenna	A.H.	SAS-571	414	2014.03.22
8	Preamplifier	R&S	SCU18	0117	2014.01.12

4. Overview of Technical requirements

The following tests were performed on a sample submitted for evaluation of compliance with FCC Part 15 C Section 15.247				
No	Reference Clause No.	FCC Part15 Subpart C Conformance Requirements	Test method	Reported
1	15.205(a)	Restricted bands of operation	Note 1	[X]
2	15.209(a)	Radiated emission limits, general requirements	Note 1	[X]
3	15.247(d)	Transmitter radiated spurious emissions	Note 1	[X]
4	15.207	Transmitter AC power line conducted emission	Note 1	[X]
5	15.203	Antenna Requirement	-	[X]
***Note:** N/T=Not Tested, N/A=Not Applicable				

Note 1: The measurement procedures described in the American National Standard for Methods of Measurement of Radio-Noise Emission from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 MHz (ANSI C63.4-2009), the guidance provided in KDB 558074 and and KDB 662911 D01 v02r01/D02 v01were used in the measurement of the DUT.

Note 2: This device use already certified module so that the below specified test items are not tested in the end product evaluation. (TX Module FCC ID : RYK-WPEA121N, Test Report no. FR131667AC issued on May.02,2011 by Sporton International Inc.)
-. 6dB bandwidth
-. Tx Output Power
-. Band edge
-. Tx Spectral Power Density

4.1. Antenna Requirement

4.1.1. Standard Applicable

For intentional device, according to FCC 47 CFR Section §15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section § 15.247 (b), if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the gain of the antenna exceeds 6 dBi.

4.1.2. Antenna Connected Construction

The antenna used of this product is dipole Antenna Assembly and peak max gain of each antennas as below. Antenna is permanently installed in the end product enclosure and no user exchange is allowed.

Band	2412 – 2462 MHz	5745 – 5825 MHz 5180 – 5320 MHz 5500 – 5700 MHz
Antenna Gain (dBi)	3.585dBi	2.830dBi

5. Test Results

5.1. Transmitter radiated spurious emissions

TEST: Transmitter radiated spurious emissions		
Method	Radiated emissions from the EUT were measured according to ANSI C63.4-2009 procedure. 1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter anechoic chamber test site. The table was rotated 360 degrees to determine the position of the highest radiation. The antenna is is varied from 1 to 4 meters above the ground to find the maximum field strength. Measurement are made with both horizontal and vertical polarizations For dundamental investigation, the EUT was positioned for 3 orthogonal orientations. 2. For measurement below 1GHz, the resolution bandwidth is set to 100 kHz for peak detection or 120kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak. 3. For measurement above 1GHz, the resolution bandwidth is set to 1 MHz and video bandwidth is set to 1 MHz for peak measurement and 10 Hz for average measurement. 4. For 2.4GHz transmitter measurement, the spectrum from 30 MHz to 26GHz is investigated for Low, Mid and High channels. For 5 GHz transmitter measurement, the spectrum from 30 MHz to 40GHz is investigated for Low, Mid and High channels.	
Supplementary information: Radiated emission which fall in the restricted bands must also comply with FCC section 15.209.		
Reference Clause	Part15 C Section 15.247 (d)	
Parameters recorded during the test	Laboratory Ambient Temperature	22 ℃
	Relative Humidity	36 %
	Frequency range	Measurement Point
Fully configured sample scanned over the following frequency range	30MHz to 10th harmonics	Enclosure Port (3 meter distance)

Configuration Settings

Test Item	Power Interface Mode # (See Section 3.3)	Test Configurations Mode # (See Section 3.6)	EUT Operation Mode # (See 3.5)
Radiated Spurious emission	1	1	1
Conducted Spurious emission	N/A	N/A	N/A
Supplementary information: None			

Limits

According to §15.247(d), in any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval , as permitted under paragraph(b)(3) of this section , the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in section §15.209(a) is not required. In addition, radiated emission which in the restricted band, as define in section §15.205(a), must also comply the radiated emission limits specified in section §15.209(a) (see section §15.205(c))

According to § 15.209(a), Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Distance (meters)	Field Strength (dBuV/m)	Field Strength (uV/m)
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

5.1.1. Radiated Spurious Emissions for Below 1 GHz

Measurement method : ☒ Radiated ☐ Conducted
Mode of operation : Continuous Wave
Power setting : Max. Power condition declared by the manufacturer

Table 1. Test data for Radiated emission for Below 1 GHz_2.4GHz

Radiated emissions			Ant	Correction factors			Total	Limit	
Frequency (MHz)	Reading (dBuV)	Detect Mode	Pol.	Distance (dB)	AF (dB/m)	Amp gain+CL (dB)	Actual (dBuV/m)	Limit (dBuV/m)	Margin (dB)
129.9	24.65	Q.P.	V	N/A	11.94	2.15	38.75	43.50	4.75
145.7	19.86	Q.P.	V	N/A	12.86	2.33	35.05	43.50	8.45
159.2	12.30	Q.P.	H	N/A	13.29	2.46	28.05	43.00	14.95
160.2	18.38	Q.P.	V	N/A	13.30	2.47	34.15	43.50	11.85
750.0	12.46	Q.P.	H	N/A	21.61	6.08	40.15	46.00	5.85
750.0	17.26	Q.P.	V	N/A	21.61	6.08	44.95	46.00	1.05

Table 2. Test data for Radiated emission for Below 1 GHz_5 GHz

Radiated emissions			Ant	Correction factors			Total	Limit	
Frequency (MHz)	Reading (dBuV)	Detect Mode	Pol.	Distance (dB)	AF (dB/m)	Amp gain+CL (dB)	Actual (dBuV/m)	Limit (dBuV/m)	Margin (dB)
129.5	22.88	Q.P.	V	N/A	11.92	2.15	36.95	43.50	6.55
145.8	20.56	Q.P.	V	N/A	12.86	2.33	35.75	43.50	7.75
159.9	19.77	Q.P.	H	N/A	13.31	2.47	35.55	43.50	7.95
160.1	20.98	Q.P.	V	N/A	13.30	2.47	36.75	43.50	6.75
750.0	13.56	Q.P.	H	N/A	21.61	6.08	41.25	46.00	4.75
750.0	17.26	Q.P.	V	N/A	21.61	6.08	44.95	46.00	1.05

Supplementary information:
-. The frequency spectrum from 30 MHz to 1 000 MHz was investigated. Emission levels are not reported much lower than the limits by over 20 dB. All reading values are peak values.

Remark
a. To get a maximum emission level from the EUT, the Antenna was moved throughout the x-axis and Y-axis. The worst case is Y-axis.
b. Actual = Reading + AF + AMP + CL (AF : Antenna factor, AMP : Amp gain, CL : Cable loss)
c. Distance factor = 20log(Measurement distance / The measured distance)
d. Margin = Limit (dBuV/m) - Actual (dBuV/m)

5.1.2. Radiated Spurious Emissions for Above 1 GHz

Measurement method : ☒ Radiated ☐ Conducted
Mode of operation : Continuous Wave
Power setting : Max. Power condition declared by the manufacturer

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Table 3. Low Channel (2412 MHz)

Radiated emissions			Ant	Correction factors			Total	Limit	
Frequency (MHz)	Reading (dBuV)	Detect Mode	Pol.	Distance (dB)	AF (dB/m)	Amp gain+CL (dB)	Actual (dBuV/m)	Limit (dBuV/m)	Margin (dB)
4824	55.35	Peak	H	N/A	32.87	-36.69	51.53	74.00	22.47
4824	46.49	Average	H	N/A	32.87	-36.69	42.67	54.00	11.33
4824	53.62	Peak	V	N/A	32.87	-36.69	49.80	74.00	24.20
4824	46.98	Average	V	N/A	32.87	-36.69	43.16	54.00	10.84

Table 4. Middle Channel (2437 MHz)

Radiated emissions			Ant	Correction factors			Total	Limit	
Frequency (MHz)	Reading (dBuV)	Detect Mode	Pol.	Distance (dB)	AF (dB/m)	Amp gain+CL (dB)	Actual (dBuV/m)	Limit (dBuV/m)	Margin (dB)
4874	55.00	Peak	H	N/A	33.01	-36.69	51.32	74.00	22.68
4874	47.22	Average	H	N/A	33.01	-36.69	43.54	54.00	10.46
4874	55.56	Peak	V	N/A	33.01	-36.69	51.88	74.00	22.12
4874	44.89	Average	V	N/A	33.01	-36.69	41.21	54.00	12.79

Table 5. High Channel(2462 MHz)

Radiated emissions			Ant	Correction factors			Total	Limit	
Frequency (MHz)	Reading (dBuV)	Detect Mode	Pol.	Distance (dB)	AF (dB/m)	Amp gain+CL (dB)	Actual (dBuV/m)	Limit (dBuV/m)	Margin (dB)
4924	50.76	Peak	H	N/A	33.05	-36.42	47.39	74.00	26.61
4924	39.32	Average	H	N/A	33.05	-36.42	35.95	54.00	18.05
4924	51.19	Peak	V	N/A	33.05	-36.42	47.82	74.00	26.18
4924	39.32	Average	V	N/A	33.05	-36.42	35.95	54.00	18.05

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Table 6. Low Channel (2412 MHz)

Radiated emissions			Ant	Correction factors			Total	Limit	
Frequency (MHz)	Reading (dBuV)	Detect Mode	Pol.	Distance (dB)	AF (dB/m)	Amp gain+CL (dB)	Actual (dBuV/m)	Limit (dBuV/m)	Margin (dB)
4824	48.25	Peak	H	N/A	32.87	-36.69	44.43	74.00	29.57
4824	37.02	Average	H	N/A	32.87	-36.69	33.20	54.00	20.80
4824	47.93	Peak	V	N/A	32.87	-36.69	44.11	74.00	29.89
4824	37.16	Average	V	N/A	32.87	-36.69	33.34	54.00	20.66

Table 7. Middle Channel (2437 MHz)

Radiated emissions			Ant	Correction factors			Total	Limit	
Frequency (MHz)	Reading (dBuV)	Detect Mode	Pol.	Distance (dB)	AF (dB/m)	Amp gain+CL (dB)	Actual (dBuV/m)	Limit (dBuV/m)	Margin (dB)
4874	58.00	Peak	H	N/A	33.01	-36.69	54.32	74.00	19.68
4874	41.36	Average	H	N/A	33.01	-36.69	37.68	54.00	16.32
4874	57.15	Peak	V	N/A	33.01	-36.69	53.47	74.00	20.53
4874	42.40	Average	V	N/A	33.01	-36.69	38.72	54.00	15.28

Table 8. High Channel (2462 MHz)

Radiated emissions			Ant	Correction factors			Total	Limit	
Frequency (MHz)	Reading (dBuV)	Detect Mode	Pol.	Distance (dB)	AF (dB/m)	Amp gain+CL (dB)	Actual (dBuV/m)	Limit (dBuV/m)	Margin (dB)
4924	61.04	Peak	H	N/A	33.05	-36.42	57.67	74.00	16.33
4924	46.27	Average	H	N/A	33.05	-36.42	42.90	54.00	11.10
4924	62.20	Peak	V	N/A	33.05	-36.42	58.83	74.00	15.17
4924	45.28	Average	V	N/A	33.05	-36.42	41.91	54.00	12.09

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Table 9. Low Channel (2412 MHz)

Radiated emissions			Ant	Correction factors			Total	Limit	
Frequency (MHz)	Reading (dBuV)	Detect Mode	Pol.	Distance (dB)	AF (dB/m)	Amp gain+CL (dB)	Actual (dBuV/m)	Limit (dBuV/m)	Margin (dB)
4824	52.55	Peak	H	N/A	32.87	-36.69	48.73	74.00	25.27
4824	43.16	Average	H	N/A	32.87	-36.69	39.34	54.00	14.66
4824	53.10	Peak	V	N/A	32.87	-36.69	49.28	74.00	24.72
4824	43.02	Average	V	N/A	32.87	-36.69	39.20	54.00	14.80

Table 10. Middle Channel (2437 MHz)

Radiated emissions			Ant	Correction factors			Total	Limit	
Frequency (MHz)	Reading (dBuV)	Detect Mode	Pol.	Distance (dB)	AF (dB/m)	Amp gain+CL (dB)	Actual (dBuV/m)	Limit (dBuV/m)	Margin (dB)
4874	52.82	Peak	H	N/A	33.01	-36.69	49.14	74.00	24.86
4874	39.14	Average	H	N/A	33.01	-36.69	35.46	54.00	18.54
4874	55.83	Peak	V	N/A	33.01	-36.69	52.15	74.00	21.85
4874	40.43	Average	V	N/A	33.01	-36.69	36.75	54.00	17.25

Table 11. High Channel (2462 MHz)

Radiated emissions			Ant	Correction factors			Total	Limit	
Frequency (MHz)	Reading (dBuV)	Detect Mode	Pol.	Distance (dB)	AF (dB/m)	Amp gain+CL (dB)	Actual (dBuV/m)	Limit (dBuV/m)	Margin (dB)
4924	54.11	Peak	H	N/A	33.05	-36.42	50.74	74.00	23.26
4924	42.19	Average	H	N/A	33.05	-36.42	38.82	54.00	15.18
4924	56.22	Peak	V	N/A	33.05	-36.42	52.85	74.00	21.15
4924	42.97	Average	V	N/A	33.05	-36.42	39.60	54.00	14.40

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Table 12. Low Channel (2422 MHz)

Radiated emissions			Ant	Correction factors			Total	Limit	
Frequency (MHz)	Reading (dBuV)	Detect Mode	Pol.	Distance (dB)	AF (dB/m)	Amp gain+CL (dB)	Actual (dBuV/m)	Limit (dBuV/m)	Margin (dB)
4844	52.66	Peak	H	N/A	33.36	-36.71	49.31	74.00	49.57
4844	42.28	Average	H	N/A	33.36	-36.71	38.93	54.00	38.92
4844	53.29	Peak	V	N/A	33.36	-36.71	49.94	74.00	51.36
4844	43.59	Average	V	N/A	33.36	-36.71	40.24	54.00	39.33

Table 13. Middle Channel (2437 MHz)

Radiated emissions			Ant	Correction factors			Total	Limit	
Frequency (MHz)	Reading (dBuV)	Detect Mode	Pol.	Distance (dB)	AF (dB/m)	Amp gain+CL (dB)	Actual (dBuV/m)	Limit (dBuV/m)	Margin (dB)
4874	52.91	Peak	H	N/A	33.01	-36.69	49.23	74.00	49.57
4874	42.82	Average	H	N/A	33.01	-36.69	39.14	54.00	38.92
4874	52.97	Peak	V	N/A	33.01	-36.69	49.29	74.00	51.36
4874	42.77	Average	V	N/A	33.01	-36.69	39.09	54.00	39.33

Table 14. High Channel (2452 MHz)

Radiated emissions			Ant	Correction factors			Total	Limit	
Frequency (MHz)	Reading (dBuV)	Detect Mode	Pol.	Distance (dB)	AF (dB/m)	Amp gain+CL (dB)	Actual (dBuV/m)	Limit (dBuV/m)	Margin (dB)
4904	54.83	Peak	H	N/A	33.13	-36.59	51.37	74.00	49.57
4904	42.76	Average	H	N/A	33.13	-36.59	39.30	54.00	38.92
4904	54.64	Peak	V	N/A	33.13	-36.59	51.18	74.00	51.36
4904	43.56	Average	V	N/A	33.13	-36.59	40.10	54.00	39.33

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Table 15. Low Channel (5745 MHz)

Radiated emissions			Ant	Correction factors			Total	Limit	
Frequency (MHz)	Reading (dBuV)	Detect Mode	Pol.	Distance (dB)	AF (dB/m)	Amp gain+CL (dB)	Actual (dBuV/m)	Limit (dBuV/m)	Margin (dB)
11490	60.20	Peak	H	N/A	38.22	-32.67	65.75	74.00	8.25
11490	44.30	Average	H	N/A	38.22	-32.67	49.85	54.00	4.15
11490	59.48	Peak	V	N/A	38.22	-32.67	65.03	74.00	8.97
11490	45.71	Average	V	N/A	38.22	-32.67	51.26	54.00	2.74

Table 16. Middle Channel (5785 MHz)

Radiated emissions			Ant	Correction factors			Total	Limit	
Frequency (MHz)	Reading (dBuV)	Detect Mode	Pol.	Distance (dB)	AF (dB/m)	Amp gain+CL (dB)	Actual (dBuV/m)	Limit (dBuV/m)	Margin (dB)
11570	57.33	Peak	H	N/A	38.20	-31.05	64.49	74.00	9.51
11570	43.00	Average	H	N/A	38.20	-31.05	50.16	54.00	3.85
11570	58.22	Peak	V	N/A	38.20	-31.05	65.38	74.00	8.63
11570	44.61	Average	V	N/A	38.20	-31.05	51.77	54.00	2.23

Table 17. High Channel (5825 MHz)

Radiated emissions			Ant	Correction factors			Total	Limit	
Frequency (MHz)	Reading (dBuV)	Detect Mode	Pol.	Distance (dB)	AF (dB/m)	Amp gain+CL (dB)	Actual (dBuV/m)	Limit (dBuV/m)	Margin (dB)
11650	55.90	Peak	H	N/A	38.20	-31.01	63.09	74.00	10.91
11650	39.21	Average	H	N/A	38.20	-31.01	46.40	54.00	7.60
11650	62.43	Peak	V	N/A	38.20	-31.01	69.62	74.00	4.38
11650	43.69	Average	V	N/A	38.20	-31.01	50.88	54.00	3.12

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Table 18. Low Channel (5745 MHz)

Radiated emissions			Ant	Correction factors			Total	Limit	
Frequency (MHz)	Reading (dBuV)	Detect Mode	Pol.	Distance (dB)	AF (dB/m)	Amp gain+CL (dB)	Actual (dBuV/m)	Limit (dBuV/m)	Margin (dB)
11490	54.72	Peak	H	N/A	38.22	-32.67	60.27	74.00	13.73
11490	38.88	Average	H	N/A	38.22	-32.67	44.43	54.00	9.57
11490	62.86	Peak	V	N/A	38.22	-32.67	68.41	74.00	5.59
11490	45.79	Average	V	N/A	38.22	-32.67	51.34	54.00	2.66

Table 19. Middle Channel (5785 MHz)

Radiated emissions			Ant	Correction factors			Total	Limit	
Frequency (MHz)	Reading (dBuV)	Detect Mode	Pol.	Distance (dB)	AF (dB/m)	Amp gain+CL (dB)	Actual (dBuV/m)	Limit (dBuV/m)	Margin (dB)
11570	49.39	Peak	H	N/A	38.20	-31.05	56.54	74.00	17.46
11570	33.38	Average	H	N/A	38.20	-31.05	40.53	54.00	13.47
11570	59.19	Peak	V	N/A	38.20	-31.05	66.34	74.00	7.66
11570	43.53	Average	V	N/A	38.20	-31.05	50.68	54.00	3.32

Table 20. High Channel (5825 MHz)

Radiated emissions			Ant	Correction factors			Total	Limit	
Frequency (MHz)	Reading (dBuV)	Detect Mode	Pol.	Distance (dB)	AF (dB/m)	Amp gain+CL (dB)	Actual (dBuV/m)	Limit (dBuV/m)	Margin (dB)
11650	50.65	Peak	H	N/A	38.20	-31.01	57.84	74.00	16.16
11650	35.44	Average	H	N/A	38.20	-31.01	42.63	54.00	11.37
11650	58.75	Peak	V	N/A	38.20	-31.01	65.94	74.00	8.06
11650	44.12	Average	V	N/A	38.20	-31.01	51.31	54.00	2.69

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Table 21. Low Channel (5755 MHz)

Radiated emissions			Ant	Correction factors			Total	Limit	
Frequency (MHz)	Reading (dBuV)	Detect Mode	Pol.	Distance (dB)	AF (dB/m)	Amp gain+CL (dB)	Actual (dBuV/m)	Limit (dBuV/m)	Margin (dB)
11510	51.29	Peak	H	N/A	38.75	-32.51	57.53	74.00	16.47
11510	35.10	Average	H	N/A	38.75	-32.51	41.34	54.00	12.66
11510	58.89	Peak	V	N/A	38.75	-32.51	65.13	74.00	8.87
11510	45.76	Average	V	N/A	38.75	-32.51	52.00	54.00	2.00

Table 22. High Channel (5795 MHz)

Radiated emissions			Ant	Correction factors			Total	Limit	
Frequency (MHz)	Reading (dBuV)	Detect Mode	Pol.	Distance (dB)	AF (dB/m)	Amp gain+CL (dB)	Actual (dBuV/m)	Limit (dBuV/m)	Margin (dB)
11590	49.78	Peak	H	N/A	38.73	-31.04	57.47	74.00	16.53
11590	35.15	Average	H	N/A	38.73	-31.04	42.84	54.00	11.16
11590	60.16	Peak	V	N/A	38.73	-31.04	67.85	74.00	6.15
11590	43.17	Average	V	N/A	38.73	-31.04	50.86	54.00	3.14

Supplementary information:
-. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental Frequency. Radiated emissions measured in frequency above 1 000 MHz were made with an instrument using peak/average detector mode.

Remark
a. "*" means the restricted band.
b. Average test would be performed if the peak result were greater than the average limit.
c. To get a maximum emission level from the EUT, the Antenna was moved throughout the x-axis and Y-axis. The worst case is Y-axis.
d. Actual = Reading + AF + AMP + CL (AF : Antenna factor, AMP : Amp gain, CL : Cable loss)
e. Distance factor = 20log(Measurement distance / The measured distance)
f. Margin = Limit (dBuV/m) - Actual (dBuV/m)

5.1.3. Radiated Restricted Band Edge Measurements

Measurement method : ☒ Radiated ☐ Conducted
Mode of operation : Continuous Wave

Table 23. Measurement for restricted band of 11b

Radiated emissions			Ant	Correction factors			Total	Limit	
Frequency (MHz)	Reading (dBuV)	Detect Mode	Pol.	Distance (dB)	AF (dB/m)	Cable loss (dB)	Actual (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2388.00	26.68	Peak	V	N/A	28.04	6.30	61.02	74.00	12.98
2386.53	14.07	Average	V	N/A	28.04	6.31	48.42	54.00	5.58
2386.27	27.75	Peak	H	N/A	28.04	6.31	62.1	74.00	11.90
2386.67	14.06	Average	H	N/A	28.04	6.31	48.41	54.00	5.59
2486.17	26.79	Peak	V	N/A	28.32	6.56	61.67	74.00	12.33
2486.88	13.64	Average	V	N/A	28.32	6.56	48.52	54.00	5.48
2487.21	27.17	Peak	H	N/A	28.32	6.56	62.05	74.00	11.95
2487.32	13.63	Average	H	N/A	28.32	6.56	48.51	54.00	5.49

Table 24. Measurement for restricted band of 11g

Radiated emissions			Ant	Correction factors			Total	Limit	
Frequency (MHz)	Reading (dBuV)	Detect Mode	Pol.	Distance (dB)	AF (dB/m)	Cable loss (dB)	Actual (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2376.53	27.80	Peak	V	N/A	28.02	6.31	62.13	74.00	11.87
2390.00	14.29	Average	V	N/A	28.05	6.30	48.64	54.00	5.36
2382.27	26.67	Peak	H	N/A	28.03	6.31	61.01	74.00	12.99
2390.00	14.32	Average	H	N/A	28.05	6.30	48.67	54.00	5.33
2483.69	31.07	Peak	V	N/A	28.31	6.56	65.94	74.00	8.06
2483.83	14.93	Average	V	N/A	28.31	6.56	49.8	54.00	4.20
2483.50	30.27	Peak	H	N/A	28.31	6.56	65.14	74.00	8.86
2483.78	14.83	Average	H	N/A	28.31	6.56	49.7	54.00	4.30

Table 25. Measurement for restricted band of 11n (HT20)

Radiated emissions			Ant	Correction factors			Total	Limit	
Frequency (MHz)	Reading (dBuV)	Detect Mode	Pol.	Distance (dB)	AF (dB/m)	Cable loss (dB)	Actual (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2389.87	27.49	Peak	V	N/A	28.04	6.30	61.83	74.00	12.17
2390.00	14.22	Average	V	N/A	28.05	6.30	48.57	54.00	5.43
2388.40	26.86	Peak	H	N/A	28.04	6.30	61.20	74.00	12.80
2390.00	14.29	Average	H	N/A	28.05	6.30	48.64	54.00	5.36
2483.69	32.97	Peak	V	N/A	28.31	6.56	67.84	74.00	6.16
2483.69	15.34	Average	V	N/A	28.31	6.56	50.21	54.00	3.79
2484.77	31.48	Peak	H	N/A	28.31	6.56	66.35	74.00	7.65
2483.53	15.01	Average	H	N/A	28.31	6.56	49.88	54.00	4.12

Table 26. Measurement for restricted band of 11n (HT40)

Radiated emissions			Ant	Correction factors			Total	Limit	
Frequency (MHz)	Reading (dBuV)	Detect Mode	Pol.	Distance (dB)	AF (dB/m)	Cable loss (dB)	Actual (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2387.20	26.57	Peak	V	N/A	28.04	6.31	60.92	74.00	13.08
2386.27	13.32	Average	V	N/A	28.04	6.31	47.67	54.00	6.33
2354.40	25.88	Peak	H	N/A	27.93	6.21	60.02	74.00	13.98
2385.47	13.26	Average	H	N/A	28.04	6.31	47.61	54.00	6.39
2484.55	34.12	Peak	V	N/A	28.31	6.56	68.99	74.00	5.01
2483.97	14.62	Average	V	N/A	28.31	6.56	49.49	54.00	4.51
2483.78	34.11	Peak	H	N/A	28.31	6.56	68.98	74.00	5.02
2492.85	14.48	Average	H	N/A	28.33	6.56	49.37	54.00	4.63

5.1.4. Receiving mode Radiated Spurious Emissions for Below 1 GHz

Table 27. Test data for Radiated emission for Below 1 GHz_2.4GHz

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
1	162.526	V	32.6	-5.2	27.4	43.5	16.1	100.0	221.0
2	574.776	V	32.7	-2.8	29.9	46.0	16.1	195.0	0.0
3	733.008	V	33.4	0.3	33.7	46.0	12.3	100.0	221.0
4	799.695	H	28.5	1.5	30.0	46.0	16.0	100.0	82.0
5	866.383	H	33.9	2.8	36.7	46.0	9.3	100.0	7.0
6	866.383	V	33.4	2.8	36.2	46.0	9.8	195.0	0.0
7	874.627	V	27.6	2.9	30.5	46.0	15.5	100.0	108.0
8	932.949	V	27.9	4.6	32.5	46.0	13.5	100.0	0.0

Table 28. Test data for Radiated emission for Below 1 GHz_5 GHz

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
1	574.776	V	33.5	-2.8	30.7	46.0	15.3	195.0	0.0
2	733.008	V	33.9	0.3	34.2	46.0	11.8	100.0	182.0
3	866.383	H	34.1	2.8	36.9	46.0	9.1	100.0	80.0
4	866.383	V	33.2	2.8	36.0	46.0	10.0	100.0	70.0
5	874.627	H	29.4	2.9	32.3	46.0	13.7	100.0	268.0
6	874.627	V	27.2	2.9	30.1	46.0	15.9	100.0	107.0
7	932.949	V	27.7	4.6	32.3	46.0	13.7	100.0	70.0
8	932.949	H	26.6	4.6	31.2	46.0	14.8	100.0	193.0

Supplementary information:

-. The frequency spectrum from 30 MHz to 1000 MHz was investigated. Emission levels are not reported much lower than the limits by over 20 dB. All reading values are peak values.

Remark

1. The field strength of spurious emission was measured in the following position: EUT stand-up position(Z axis), lie-down position(X,Y axis). The worst emission was found in stand-up position(Z axis) and the worst case was recorded.

5.1.5. Receiving modeRadiated Spurious Emissions for Above 1 GHz

Measurement method : ☒ Radiated ☐ Conducted
Mode of operation : Receiving mode

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Table 29. Low Channel (2412 MHz)

Frequency [MHz]	Reading [dBuV/m] AV / Peak	Pol.	Correction Factor [dB]		Limits [dBuV/m] AV / Peak	Result [dBuV/m] AV / Peak	Margin [dB] AV / Peak
			Ant	CL+Amp			
No emissions were detected at a level greater than 20dB below limit.							

Table 30. Middle Channel (2437 MHz)

Frequency [MHz]	Reading [dBuV/m] AV / Peak	Pol.	Correction Factor [dB]		Limits [dBuV/m] AV / Peak	Result [dBuV/m] AV / Peak	Margin [dB] AV / Peak
			Ant	CL+Amp			
No emissions were detected at a level greater than 20dB below limit.							

Table 31. High Channel (2462 MHz)

Frequency [MHz]	Reading [dBuV/m] AV / Peak	Pol.	Correction Factor [dB]		Limits [dBuV/m] AV / Peak	Result [dBuV/m] AV / Peak	Margin [dB] AV / Peak
			Ant	CL+Amp			
No emissions were detected at a level greater than 20dB below limit.							

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Table 32. Low Channel (2412 MHz)

Frequency [MHz]	Reading [dBuV/m] AV / Peak	Pol.	Correction Factor [dB]		Limits [dBuV/m] AV / Peak	Result [dBuV/m] AV / Peak	Margin [dB] AV / Peak
			Ant	CL+Amp			
No emissions were detected at a level greater than 20dB below limit.							

Table 33. Middle Channel (2437 MHz)

Frequency [MHz]	Reading [dBuV/m] AV / Peak	Pol.	Correction Factor [dB]		Limits [dBuV/m] AV / Peak	Result [dBuV/m] AV / Peak	Margin [dB] AV / Peak
			Ant	CL+Amp			
No emissions were detected at a level greater than 20dB below limit.							

Table 34. High Channel (2462 MHz)

Frequency [MHz]	Reading [dBuV/m] AV / Peak	Pol.	Correction Factor [dB]		Limits [dBuV/m] AV / Peak	Result [dBuV/m] AV / Peak	Margin [dB] AV / Peak
			Ant	CL+Amp			
No emissions were detected at a level greater than 20dB below limit.							

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Table 35. Low Channel (2422 MHz)

Frequency [MHz]	Reading [dBuV/m] AV / Peak	Pol.	Correction Factor [dB]		Limits [dBuV/m] AV / Peak	Result [dBuV/m] AV / Peak	Margin [dB] AV / Peak
			Ant	CL+Amp			
No emissions were detected at a level greater than 20dB below limit.							

Table 36. Middle Channel (2437 MHz)

Frequency [MHz]	Reading [dBuV/m] AV / Peak	Pol.	Correction Factor [dB]		Limits [dBuV/m] AV / Peak	Result [dBuV/m] AV / Peak	Margin [dB] AV / Peak
			Ant	CL+Amp			
No emissions were detected at a level greater than 20dB below limit.							

Table 37. High Channel (2452 MHz)

Frequency [MHz]	Reading [dBuV/m] AV / Peak	Pol.	Correction Factor [dB]		Limits [dBuV/m] AV / Peak	Result [dBuV/m] AV / Peak	Margin [dB] AV / Peak
			Ant	CL+Amp			
No emissions were detected at a level greater than 20dB below limit.							

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Table 38. Low Channel (5745 MHz)

Frequency [MHz]	Reading [dBuV/m] AV / Peak	Pol.	Correction Factor [dB]		Limits [dBuV/m] AV / Peak	Result [dBuV/m] AV / Peak	Margin [dB] AV / Peak
			Ant	CL+Amp			
No emissions were detected at a level greater than 20dB below limit.							

Table 39. Middle Channel (5785 MHz)

Frequency [MHz]	Reading [dBuV/m] AV / Peak	Pol.	Correction Factor [dB]		Limits [dBuV/m] AV / Peak	Result [dBuV/m] AV / Peak	Margin [dB] AV / Peak
			Ant	CL+Amp			
No emissions were detected at a level greater than 20dB below limit.							

Table 40. High Channel (5825 MHz)

Frequency [MHz]	Reading [dBuV/m] AV / Peak	Pol.	Correction Factor [dB]		Limits [dBuV/m] AV / Peak	Result [dBuV/m] AV / Peak	Margin [dB] AV / Peak
			Ant	CL+Amp			
No emissions were detected at a level greater than 20dB below limit.							

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Table 41. Low Channel (5745 MHz)

Frequency [MHz]	Reading [dBuV/m] AV / Peak	Pol.	Correction Factor [dB]		Limits [dBuV/m] AV / Peak	Result [dBuV/m] AV / Peak	Margin [dB] AV / Peak
			Ant	CL+Amp			
No emissions were detected at a level greater than 20dB below limit.							

Table 42. Middle Channel (5785 MHz)

Frequency [MHz]	Reading [dBuV/m] AV / Peak	Pol.	Correction Factor [dB]		Limits [dBuV/m] AV / Peak	Result [dBuV/m] AV / Peak	Margin [dB] AV / Peak
			Ant	CL+Amp			
No emissions were detected at a level greater than 20dB below limit.							

Table 43. High Channel (5825 MHz)

Frequency [MHz]	Reading [dBuV/m] AV / Peak	Pol.	Correction Factor [dB]		Limits [dBuV/m] AV / Peak	Result [dBuV/m] AV / Peak	Margin [dB] AV / Peak
			Ant	CL+Amp			
No emissions were detected at a level greater than 20dB below limit.							

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Table 44. Low Channel (5755 MHz)

Frequency [MHz]	Reading [dBuV/m] AV / Peak	Pol.	Correction Factor [dB]		Limits [dBuV/m] AV / Peak	Result [dBuV/m] AV / Peak	Margin [dB] AV / Peak
			Ant	CL+Amp			
No emissions were detected at a level greater than 20dB below limit.							

Table 45. High Channel (5795 MHz)

Frequency [MHz]	Reading [dBuV/m] AV / Peak	Pol.	Correction Factor [dB]		Limits [dBuV/m] AV / Peak	Result [dBuV/m] AV / Peak	Margin [dB] AV / Peak
			Ant	CL+Amp			
No emissions were detected at a level greater than 20dB below limit.							

5.2. Mains Terminal Disturbance Voltage Test

TEST: Limits of mains terminal disturbance voltage				
Method	Measurements were made on a ground plane that extends 1-meter minimum beyond all sides of the system under test. All power was connected to the system through Artificial Mains Network (AMN). Conducted voltage measurements on mains lines were made at the output of the AMN.			
Parameters recorded during the test		Laboratory Ambient Temperature	21℃	
		Relative Humidity	44%	
-		Frequency range on each side of line	Measurement Point	
Fully configured sample scanned over the following frequency range		0.15 MHz to 30 MHz	AC input port of EUT	

Limits - Class B				
Frequency (MHz)	Limit (dBμV)			
	Quasi-Peak	Result	Average	Result
0.15 to 0.50	66 to 56	Pass	56 to 46	Pass
0.50 to 5	56	Pass	46	Pass
5 to 30	60	Pass	50	Pass

EUT Configuration Settings:		
Power Interface Mode # (See Section 2.3)	EUT Operation Mode # (See 2.4)	EUT Configurations Mode # (See Section 2.5)
1	1	1

Conducted Emissions Test Equipment used:				
Description	Manufacturer	Model	Identifier	Cal. Due
EMI Test Receiver	R&S	ESCI	100364	2014. 02. 27
ANM(EUT)	R&S	ESH2-Z5	828739/006	2013. 09. 18
LISN(Ancillary)	TTI	LISN1600	197204	2014.06. 27
DC block	HYUPLIP	KFL-007	7-1581-5	N/A
50 Ohm terminator	TME	CT-01	N/A	2013. 09. 01

Figure.1. Conducted Emissions Graph

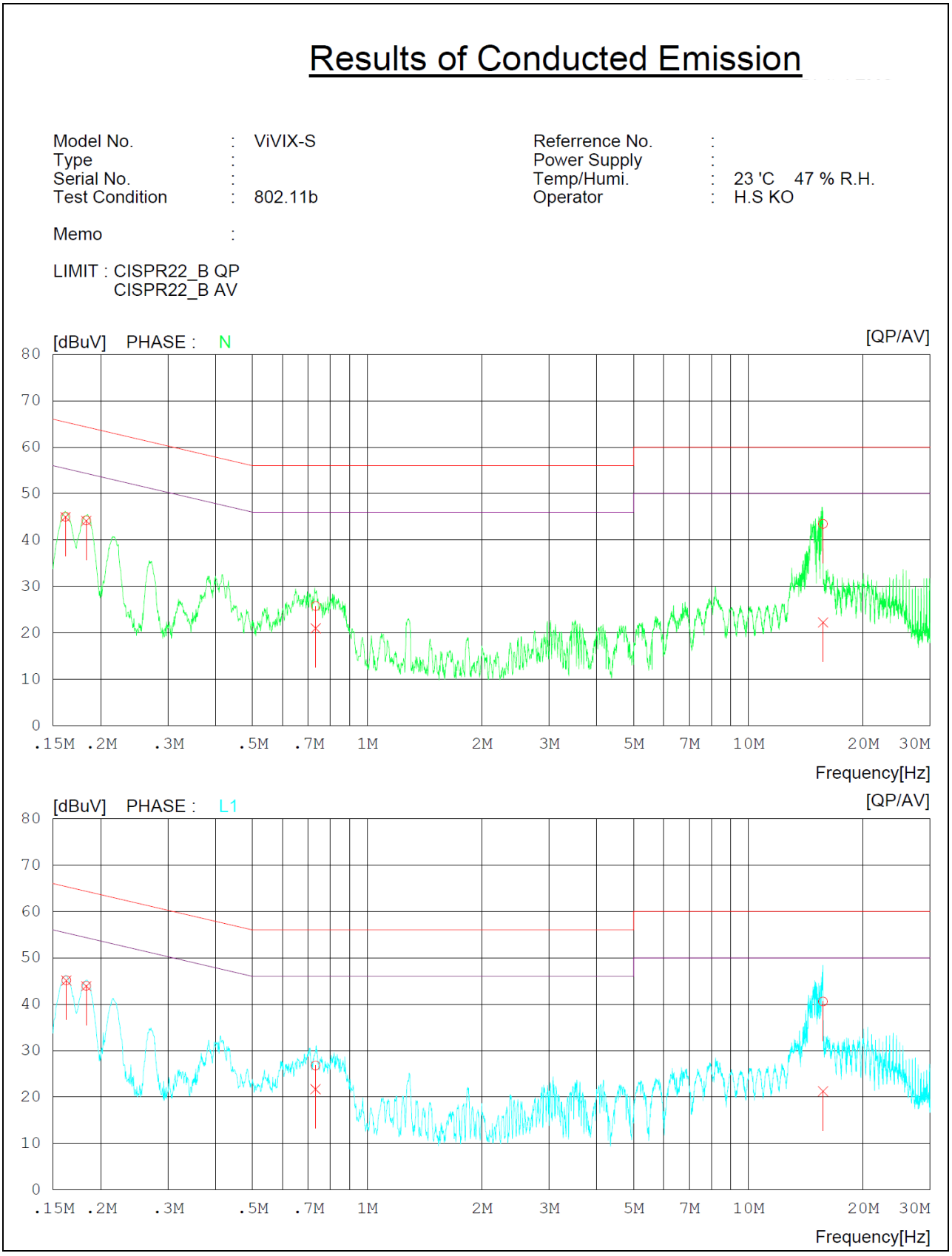

Table 1. Conducted Emissions Data Table

Model No.	:	ViVIX-S	Referrence No.	:	
Type	:		Power Supply	:	
Serial No.	:		Temp/Humi.	:	23 'C 47 % R.H.
Test Condition	:	802.11b	Operator	:	H.S KO

Memo :

LIMIT : CISPR22_B QP
CISPR22_B AV

NO	FREQ	READING QP	READING AV	C.FACTOR	RESULT QP	RESULT AV	LIMIT QP	LIMIT AV	MARGIN QP	MARGIN AV	PHASE
	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	
1	0.16154	44.7	44.6	0.3	45.0	44.9	65.4	55.4	20.4	10.5	N
2	0.18319	44.0	43.9	0.2	44.2	44.1	64.3	54.3	20.1	10.2	N
3	0.73271	25.6	20.8	0.2	25.8	21.0	56.0	46.0	30.2	25.0	N
4	15.71050	42.4	21.2	1.0	43.4	22.2	60.0	50.0	16.6	27.8	N
5	0.16246	44.8	44.8	0.3	45.1	45.1	65.3	55.3	20.2	10.2	L1
6	0.18319	43.8	43.7	0.2	44.0	43.9	64.3	54.3	20.3	10.4	L1
7	0.73225	26.6	21.5	0.2	26.8	21.7	56.0	46.0	29.2	24.3	L1
8	15.71000	39.6	20.3	1.0	40.6	21.3	60.0	50.0	19.4	28.7	L1

Figure.2. Conducted Emissions Graph

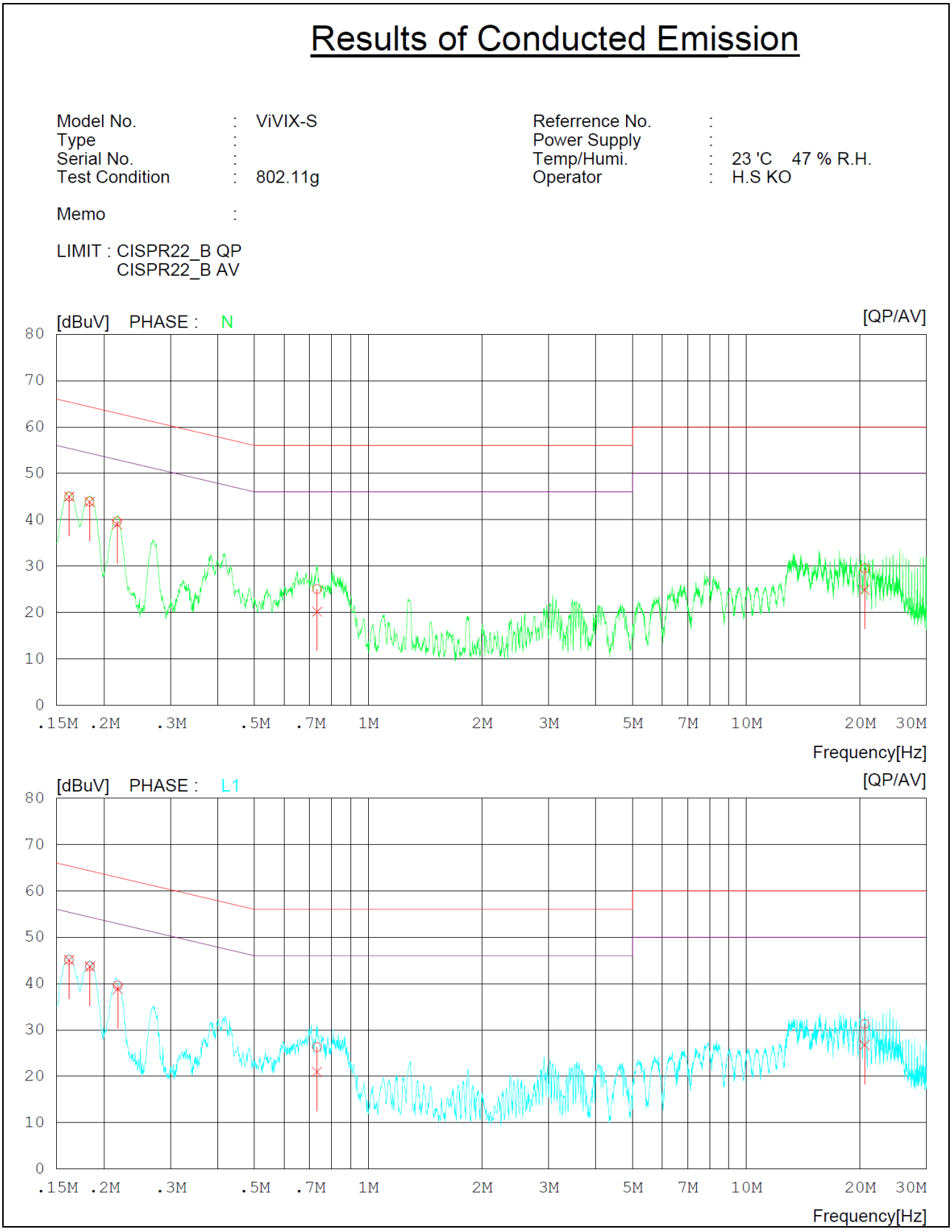

Table 2. Conducted Emissions Data Table

Model No.	:	ViVIX-S	Referrence No.	:	
Type	:		Power Supply	:	
Serial No.	:		Temp/Humi.	:	23 'C 47 % R.H.
Test Condition	:	802.11g	Operator	:	H.S KO

Memo :

LIMIT : CISPR22_B QP
CISPR22_B AV

NO	FREQ	READING QP	READING AV	C.FACTOR	RESULT QP	RESULT AV	LIMIT QP	LIMIT AV	MARGIN QP	MARGIN AV	PHASE
	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	
1	0.16188	44.7	44.7	0.3	45.0	45.0	65.4	55.4	20.4	10.4	N
2	0.18324	43.7	43.6	0.2	43.9	43.8	64.3	54.3	20.4	10.5	N
3	0.21665	39.4	38.8	0.2	39.6	39.0	62.9	52.9	23.3	13.9	N
4	0.73296	24.9	20.0	0.2	25.1	20.2	56.0	46.0	30.9	25.8	N
5	20.57200	28.4	23.8	1.1	29.5	24.9	60.0	50.0	30.5	25.1	N
6	0.16164	44.9	44.8	0.3	45.2	45.1	65.4	55.4	20.2	10.3	L1
7	0.18366	43.6	43.4	0.2	43.8	43.6	64.3	54.3	20.5	10.7	L1
8	0.21758	39.4	38.6	0.2	39.6	38.8	62.9	52.9	23.3	14.1	L1
9	0.73226	26.1	20.8	0.2	26.3	21.0	56.0	46.0	29.7	25.0	L1
10	20.57350	30.2	25.6	1.1	31.3	26.7	60.0	50.0	28.7	23.3	L1